CLAIMS

1. An integrated optical add/drop device (100) having switching function for use in Wavelength Division Multiplexing (WDM) optical communication systems, comprising first and second interferometric arms (109, 110) of an Interferometer (111), characterized in that it further comprises:

- an optical filter (112) having first and second input ports (112a, 112b) and first and second output ports (112c, 112d), said first input port (112a) being connected to a first portion (109a) of said first interferometric arm (109), said second input port (112b) being connected to a first portion (110a) of said second interferometric arm (110), said first output port (112c) being connected to a second portion (109b) of said first interferometric arm (109), said second output port (112d) being connected to a second portion (110b) of said second interferometric arm (110), said optical filter (112) acting as a selective switch exchanger for exchanging between one interferometric arm to the other at least one of a plurality of optical signals $S(\lambda 1)$, $S(\lambda 2)$, ..., $S(\lambda n)$ received at its input ports (112a, 112b) and for transmitting the remaining optical signals through its output ports (112c, 112d) in said first and second interferometric arms (109, 110); and

- at least first and second optical shifters (115, 116) located on opposite sides of said optical filter (112).

2. The device according to Claim 1, characterized in that said optical filter (112) is a tunable optical filter.

3. The device according to any of the preceding

claims, characterized in that each of said first and second phase shifter (115, 116) introduces a phase shift of $0 \pm 2\pi N$ into each optical signal $S1(\lambda 1)$, $S2(\lambda 2)$, ..., $Sn(\lambda n)$ propagating in said first and second interferometric arms (109, 110) when it is in a first state.

4. The device according to any of the preceding claims, characterized in that each of said first and second phase shifter (115, 116) introduces a phase shift of $\pi/2 \pm 2\pi N$ into each optical signal $S1(\lambda 1)$, $S2(\lambda 2)$, ..., $Sn(\lambda n)$ propagating in said first and second interferometric arms (109, 110) when it is in a second state.

5. The device according to Claim 4, characterized in that each phase shifter (115, 116) is located in a different interferometric arm (109, 110).

6. The device according to Claim 5, characterized in that said first phase shifter (115) is located in said first portion (109a) of said first interferometric (109) and said second phase shifter (116) is located in said second portion (110b) of said second interferometric arm (110).

7. The device according to any of the Claims 1-4, characterized in that said first and second phase shifters (115, 116) are both located on a same one of said first and second interferometric arms (109, 110).

8. The device according to Claim 7, characterized in that said first phase shifter (115) is located in said first portion (109a) of said first interferometric (109) and said second phase shifter (116) is located in said second portion (109b) of said first interferometric arm (109).

9. The device according to any of the preceding

claims, characterized in that said Interferometer (111) is a Mach Zehnder Interferometer.

10. Method for adding or dropping optical signals in Wavelength Division Multiplexing (WDM) optical communications, comprising the steps of:

- sending a plurality of optical signals $S(\lambda 1)$, $S(\lambda 2)$, ..., $S(\lambda n)$ to respective first portions (109a, 110a) of first and second interferometric arms (109, 110);

- exchanging between one interferometric arm to the other at least one of said plurality of optical signals $S(\lambda 1)$, $S(\lambda 2)$, ..., $S(\lambda n)$;

- transmitting the remaining optical signals in respective second portions (109b, 110b) of said first and second interferometric arms (109, 110); and

- introducing a phase shift on at least one of said first portions (109a, 110a) and at least one of said second portions (109b, 110b) of said first and second interferometric arms (109, 110) for switching said integrated optical add/drop device (100) from a first state to a second state.